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JC05 Rec'd PCT/PTO 11 MAY 2001

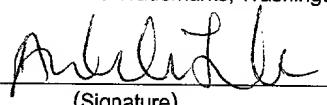
Express Mail No.: **EL 822864084 US**

Date: **May 11, 2001**

I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.

ANTONELLA FUSILLO

(Name of person mailing paper or fee)



(Signature)

<b>TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371</b>		Attorney's Docket No: <b>STOIBER-5</b>
INTERNATIONAL APPLICATION NO. <b>PCT/EP99/08713</b>	INTERNATIONAL FILING DATE <b>November 12, 1999</b>	PRIORITY DATE CLAIMED <b>November 18, 1998</b>
<b>TITLE OF INVENTION</b> <b>WINDING CORE FOR LINEAR MOTORS</b>		
<b>APPLICANT(S) FOR DO/EO/US</b> <b>DIETMAR STOIBER</b>		

**Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:**

1.  This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.
2.  This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.
3.  This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4.  A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5.  A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a.  is transmitted herewith (required only if not transmitted by the International Bureau).
  - b.  has been transmitted by the International Bureau.
  - c.  is not required, as the application was filed in the United States Receiving Office (RO/US)
6.  A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7.  Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a.  are transmitted herewith (required only if not transmitted by the International Bureau).
  - b.  have been transmitted by the International Bureau.
  - c.  have not been made; however, the time limit for making such amendments has NOT expired.
  - d.  have not been made and will not be made.
8.  A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9.  Original or facsimile of an oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10.  A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

**Items 11. to 16. concern other document(s) or information included:**

11.  An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12.  An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13.  A FIRST preliminary amendment.  
 A SECOND or SUBSEQUENT preliminary amendment.
14.  A substitute specification.
15.  A change of power of attorney and/or address letter.
16.  Other items or information: International Search Report and Form PTO-1449

U.S.APPLICATION NO. (if known, see 37 CFR 1.5)	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NO.																									
<b>09/831762</b>	<b>PCT/EP99/08713</b>	<b>STOIBER-5</b>																									
<p>17. <input checked="" type="checkbox"/> The following fees are submitted :          BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5):</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%; vertical-align: top;"> <input checked="" type="checkbox"/> For filing with EPO or JPO search report (37 C.F.R. 1.492(a)(5))  <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 C.F.R. 1.492(a)(1))  <input type="checkbox"/> No international preliminary examination fee paid to USPTO (37 C.F.R. 1.492(a)(2))  <input type="checkbox"/> Neither international preliminary examination fee paid to USPTO (37 C.F.R. 1.492(a)(3))  <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 C.F.R. 1.492(a)(4))       </td> <td style="width: 40%; text-align: right; vertical-align: bottom;"> <b>\$ 860.00</b>  <b>\$ 690.00</b>  <b>\$ 710.00</b>  <b>\$1,000.00</b>  <b>\$ 100.00</b> </td> </tr> </table> <p>Surcharge of <b>\$130.00</b> for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Claims</th> <th style="width: 33%;">Number Field</th> <th style="width: 34%;">Rate</th> </tr> </thead> <tbody> <tr> <td>Total Claims</td> <td>20-20</td> <td>x \$ 18.00</td> </tr> <tr> <td>Independent Claims</td> <td>2-3</td> <td>x \$ 80.00</td> </tr> <tr> <td>Multiple dependent claims (if applicable)</td> <td></td> <td>x \$270.00</td> </tr> <tr> <td colspan="2" style="text-align: right;">TOTAL OF ABOVE CALCULATIONS</td> <td style="text-align: right;"><b>\$860.00</b></td> </tr> </tbody> </table> <p><input checked="" type="checkbox"/> Applicant claims small entity status pursuant to 37 C.F.R. 1.27.          Reduction by 1/2 for filing by small entity.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%; text-align: right;">SUBTOTAL</td> <td style="width: 20%; text-align: right;"><b>\$860.00</b></td> </tr> </table> <p>Processing fee of <b>\$130.00</b> for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date 37 CFR 1.492(f).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%; text-align: right;">TOTAL NATIONAL FEE</td> <td style="width: 20%; text-align: right;"><b>\$860.00</b></td> </tr> </table> <p>Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%; text-align: right;">TOTAL FEES ENCLOSED</td> <td style="width: 20%; text-align: right;"><b>\$ 40.00</b></td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%; text-align: right;">Amount to be refunded</td> <td style="width: 20%; text-align: right;"><b>\$900.00</b></td> </tr> </table>			<input checked="" type="checkbox"/> For filing with EPO or JPO search report (37 C.F.R. 1.492(a)(5)) <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 C.F.R. 1.492(a)(1)) <input type="checkbox"/> No international preliminary examination fee paid to USPTO (37 C.F.R. 1.492(a)(2)) <input type="checkbox"/> Neither international preliminary examination fee paid to USPTO (37 C.F.R. 1.492(a)(3)) <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 C.F.R. 1.492(a)(4))	<b>\$ 860.00</b> <b>\$ 690.00</b> <b>\$ 710.00</b> <b>\$1,000.00</b> <b>\$ 100.00</b>	Claims	Number Field	Rate	Total Claims	20-20	x \$ 18.00	Independent Claims	2-3	x \$ 80.00	Multiple dependent claims (if applicable)		x \$270.00	TOTAL OF ABOVE CALCULATIONS		<b>\$860.00</b>	SUBTOTAL	<b>\$860.00</b>	TOTAL NATIONAL FEE	<b>\$860.00</b>	TOTAL FEES ENCLOSED	<b>\$ 40.00</b>	Amount to be refunded	<b>\$900.00</b>
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<p>a. <input checked="" type="checkbox"/> A check in the amount of <b>\$900.00</b> to cover the above fees is enclosed.</p> <p>b. <input type="checkbox"/> Please charge my Deposit Account No. <b>06-0502</b> in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.</p> <p>c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <b>06-0502</b>. A duplicate copy of this sheet is enclosed.</p> <p>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b) must be filed and granted to restore the application to pending status.</p> <p><b>Send all correspondence to:</b></p> <p>HENRY M. FEIEREISEN          350 Fifth Avenue          Suite 3220          New York, N.Y. 10118          (212) 244-5500          Date: May 11, 2001</p> <p style="text-align: right; margin-top: 20px;">           HENRY M. FEIEREISEN          Registration No. 31,084       </p>																											

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Docket No.: STOIBER-5

**In re Application of:**

**DIETMAR STOIBER**

**Int. Appl. No.: PCT/EP99/08713**

**Int. Filing Date: November 12, 1999**

**For: WINDING CORE FOR LINEAR MOTORS**

**PRELIMINARY AMENDMENT**

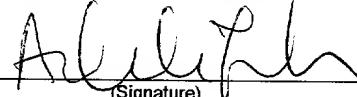
Assistant Commissioner for Patents  
Washington, D.C. 20231

Express Mail mailing label number: **EL 822864084 US**  
Date of Deposit: **May 11, 2001**

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**ANTONELLA FUSILLO**

(Name of person mailing paper or fee)

  
(Signature)

SIR:

Preliminary to the first Official Action in the above-entitled application, please amend the application as follows.

The Commissioner is hereby authorized to charge fees which may be required, or credit any overpayment to Deposit Account No. 06-0502.

**VERSION WITH MARKINGS TO SHOW CHANGES MADE:**

**IN THE SPECIFICATION:**

Before paragraph [0001], add the heading --BACKGROUND OF THE INVENTION--.

Before paragraph [0005], add the heading --SUMMARY OF THE INVENTION--.

Delete paragraph [0006].

Before paragraph [0013], add the heading --BRIEF DESCRIPTION OF THE DRAWING--.

Before paragraph [0018], add the heading --DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS--.

Page 8, after the heading "CLAIMS" and before the first claim add --What is claimed is:--.

**IN THE CLAIMS:**

**Cancel** claims 1 to 11 without prejudice.

**Add** the following claims:

12. (New) A winding core for use in a linear motor, comprising a yoke having protruding teeth that define slots for receiving at least one winding, wherein each tooth has a yoke-proximal portion and yoke-distal portion, wherein the yoke-proximal portion has in a direction perpendicular to a movement direction of the linear motor a lateral dimension which is greater than a lateral dimension of the yoke-distal portion.

13. (New) The winding core of claim 12, wherein the dimension of the yoke-proximal portion on one side is greater by about 5% than the dimension of the yoke-distal portion.
14. (New) The winding core of claim 12, wherein the dimension of the yoke-proximal portion on each side is greater by up to 5% than the dimension of the yoke-distal portion.
15. (New) The winding core of claim 13, wherein the teeth are arranged in symmetry in a direction perpendicular to the movement direction of the linear motor.
- 16 (New) The winding core of claim 13, wherein each tooth is formed with at least one shoulder to thereby widen the dimension of the yoke-proximal portion.
17. (New) The winding core of claim 13, wherein each tooth is formed with a slanted transition between the yoke-proximal portion and the yoke-distal portion.
18. (New) The winding core of claim 13, wherein the yoke-distal portion of each tooth begins at a location which is distant from the yoke by not more than half a tooth length.

19. (New) The winding core of claim 13, wherein the yoke-distal portion is connected to the yoke-proximal portion by a continuously expanding transition.

20. (New) The winding core of claim 13, wherein the yoke has a lateral dimension which corresponds to the lateral dimension of the yoke-proximal portion of each tooth.

21. (New) The winding core of claim 13, wherein the yoke has a lateral dimension which corresponds over its entire length to the lateral dimension of the yoke-proximal portion of each tooth.

22. (New) A linear motor, comprising:  
a primary part; and  
a secondary part;  
wherein at least one of the primary part and the secondary part has a winding core including a yoke having protruding teeth that define slots for receiving at least one winding, wherein each tooth has a yoke-proximal portion and yoke-distal portion, wherein the yoke-proximal portion has in a direction perpendicular to a movement direction of the linear motor a lateral dimension which exceeds a lateral dimension of the yoke-distal portion.

23. (New) The linear motor of claim 22, wherein the dimension of the yoke-proximal portion on one side is greater by about 5% than the dimension of the yoke-distal portion.
24. (New) The linear motor of claim 22, wherein the dimension of the yoke-proximal portion on each side is greater by up to 5% than the dimension of the yoke-distal portion.
25. (New) The linear motor of claim 22, wherein the teeth are arranged in symmetry in a direction perpendicular to the movement direction of the linear motor.
26. (New) The linear motor of claim 23, wherein each tooth is formed with at least one shoulder to thereby widen the dimension of the yoke-proximal portion.
27. (New) The linear motor of claim 22, wherein each tooth is formed with a slanted transition between the yoke-proximal portion and the yoke-distal portion.
28. (New) The linear motor of claim 22, wherein the yoke-distal portion of each tooth begins at a location which is distant from the yoke by not more than half a tooth length.

29. (New) The linear motor of claim 22, wherein the yoke-distal portion is connected to the yoke-proximal portion by a continuously expanding transition.

30. (New) The linear motor of claim 22, wherein the yoke has a lateral dimension which corresponds to the lateral dimension of the yoke-proximal portion.

31. (New) The linear motor of claim 22, wherein the yoke has a lateral dimension which corresponds over its entire length to the lateral dimension of the yoke-proximal portion.

## REMARKS

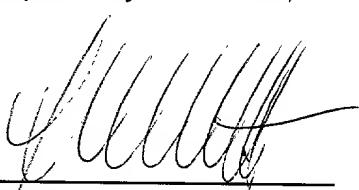
This Amendment is submitted preliminary to the issuance of an Office Action in the present application.

Applicant has canceled original claims 1 to 11 and submits herewith new claims 12 to 31 to better encompass the full scope and breadth of the invention notwithstanding applicant's belief that the claims would have been allowable as originally filed. Accordingly, applicant asserts that no claims have been narrowed within the meaning of the *Festo*-decision. *Festo Corp. v. Shoketsu Kinsoku Kogyo Kabushiki Co.*, 56 USPQ2d 1865 (Fed. Cir. Nov. 29, 2000)(en banc). In addition, applicant has amended the specification to present it in proper form and language by providing proper headings and deleting any reference to particular claim numbers.

When the Examiner takes this application up for action, he is requested to take the foregoing into account.

Respectfully submitted,

By:

  
Henry M. Feiereisen  
Agent for Applicant  
Reg. No. 31,084

Date: May 11, 2001  
350 Fifth Avenue  
Suite 3220  
New York, N.Y. 10118  
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HMF:af

WINDING CORE FOR LINEAR MOTORS

**[0001]** The invention relates to a winding core for linear motors, having a yoke and protruding teeth for formation of slots for receiving a winding. Such winding cores are used for the active and/or reactive parts of linear motors (also designated as primary parts and secondary parts).

**[0002]** The flux density of the magnetic field induced by the winding can become very great in the teeth of such winding cores. The magnetic flux density may hereby increase to such an extent that the saturation magnetization for the material of the winding core is reached, thereby decreasing the efficiency of the linear motor.

**[0003]** In order to reduce the magnetic flux density in the tooth, the tooth cross section can be enlarged. When the tooth cross section is enlarged in movement direction of the linear motor, the slot widths are hereby decreased, resulting, on the one hand, in an increase of the flux leakage across the slot in view of the smaller distance between the teeth. Moreover, there is less space in the slots for the winding. Further, the hysteresis loss increases in the tooth as a consequence of the greater tooth mass.

**[0004]** A further possibility to reduce the magnetic flux density in the tooth is an enlargement of its lateral cross section perpendicular to the movement

direction of the motor. This, too, results, however, in an increased flux leakage across the slot. Moreover, this measure also leads to an increase in tooth mass, resulting in a higher dissipation.

**[0005]** It is an object of the present invention to effectively eliminate the afore-stated drawbacks and to reduce the magnetic flux density in the tooth.

**[0006]** This object is attained by a winding core according to claim 1.

**[0007]** The solution is based on the recognition that the flux density in the tooth is the greatest in the portion adjacent to the yoke and decreases with increasing distance from the yoke as a consequence of the increasing flux leakage across the slot.

**[0008]** The teeth have thus a yoke-proximal portion and a yoke-distal portion. The yoke-proximal portion is widened with respect to the yoke-distal portion laterally in the direction perpendicular to the movement direction of the linear motor. In this way, the cross sectional area of the teeth is enlarged in a zone where the magnetic flux density is the highest. On the other hand, the tooth cross section is not enlarged in a zone where the flux leakage across the slot is the highest, namely in the yoke-distal portion of the teeth.

**[0009]** The widening of the yoke-proximal ends of the teeth amounts, preferably, to about 10%.

**[0010]** In particular, the widening may be implemented symmetrically on both sides of the teeth.

**[0011]** The widening of the teeth may be realized in the form of at least one shoulder. In particular, the at least one shoulder is not distanced from the yoke any farther than half the tooth length.

**[0012]** As an alternative, the widening of the teeth may also be realized via a slanted shoulder.

**[0013]** Embodiments will now be described in more detail with reference to the figures.

**[0014]** FIG. 1 shows the distribution of the flux density in a winding core according to the prior art;

**[0015]** FIG. 2 shows a side view of a first exemplified embodiment of the winding core according to the invention perpendicular to the movement direction of the motor;

**[0016]** FIG. 3 shows a vertical section of the first exemplified embodiment transversely to the movement direction of the motor through the yoke and a tooth of the winding core;

**[0017]** FIG. 4 shows a vertical section of a second exemplified embodiment of the winding core according to the invention transversely to the movement direction of the motor through the yoke and a tooth of the winding core.

**[0018]** FIG. 1 illustrates the distribution of the flux density in a conventional winding core 1 (here the primary or active part), with the windings (not shown) receiving electric current. Reference numeral 2 denotes the reactive part (or secondary part) of the linear motor. The reactive part and the active part interact in a known manner.

**[0019]** The winding core includes a yoke 3 and teeth 4, with slots 5 being formed therebetween. It can be seen from the figure with respect to the center tooth that the magnetic flux density is the greatest in the region of the tooth 4, which adjoins the yoke 3. The flux density decreases with increasing distance from the yoke as a consequence of the flux leakage across the slot, which flux leakage increases between the teeth 4 as the distance from the yoke 3 increases.

**[0020]** FIG. 2 shows a side view, perpendicular to the movement direction according to the first exemplified embodiment of the winding core 1 according to the invention. The illustrated winding core 1 includes a return yoke 3 with protruding teeth 4. The teeth 4 define the boundaries for the slots 5 which receive the winding (not shown), i.e. the winding (or windings), are thus guided around the teeth.

**[0021]** The teeth 4 are wider on their yoke-proximal portion 7 than on their yoke-distal portion 6 (FIG. 3). The transition between both these portions 6 and 7 is configured as shoulder 8 having a smaller distance from the yoke 3 than its distance from the yoke-distal end surface 9 of the tooth 4. The windings (not shown) are so configured as to be wound around the widened portion 7 as well as around the non-widened portion 6.

**[0022]** The above-described configuration of the tooth results in a decrease of the magnetic flux density in the portion 7, without increasing the flux leakage across the slot in the area of the portion 6. The increase in tooth mass as a consequence of the enlargement of the portion 7 with respect to the portion 6 is fairly small compared to the overall mass of the tooth 4 so that dissipation as a consequence of hysteresis losses is only slightly increased.

**[0023]** The second exemplified embodiment (FIG. 4) differs from the first one only in that the transition between the yoke-distal portion 6' to the yoke-proximal portion 7' is realized via a slanted shoulder 10.

**[0024]** The configurations of the transition from the yoke-distal portion to the wider yoke-proximal portion of the tooth, as shown in both exemplified embodiments, are not the only options. For example, multiple shoulders or transitions with continuous or curved configurations are possible. The continuous widening may already commence on the yoke-distal end surface of the tooth, when the transitions are continuous from the yoke-distal portion to the yoke-proximal, wider portion. Also, there is no need for the tooth configuration to be symmetrical. It is, for example, possible that the transition to the wide portion of the tooth is different on both tooth sides, or only provided on one side of the tooth.

**[0025]** As shown in the sections according to FIGS. 3 and 4, the winding cores are each made of individual, stacked metal sheets. The tooth enlargements are hereby so realized that the respectively last lateral metal sheets (in the illustration 4 on each side) have different tooth lengths compared to all the remaining ones; multiple shoulders can hereby be realized by providing these metal sheets with different (outwardly decreasing) tooth lengths.

**[0026]** To clearly show the tooth lengths, the slot base is shown as continuous line in each of FIGS. 3 and 4.

**[0027]** FIG. 1 depicts that the flux density in the yoke-proximal portion of the tooth, directly adjacent the slot 5 and the yoke 3, is the greatest; this has been confirmed through calculation by using the finite element method, and FIG. 1 is based on such a calculation. It would thus basically be sufficient to widen only the respective portion of the teeth to reduce the flux density below the saturation magnetization.

**[0028]** In the illustrated exemplified embodiments, the yoke is, however, widened in addition over the entire length of the winding core so that also in this case the flux density is reduced. This can also be exploited on the other hand to reduce the height or thickness of the yoke 3 (perpendicular in the figures) because the hereby accompanying increase in flux density can be compensated by yoke enlargement. In this manner, linear motors of flatter configuration can be realized.

**[0029]** Furthermore, the widening of the yoke 3 between the teeth 4 may, for example, also be omitted so that the yoke does not exhibit a uniform width over the length of the linear motor, and material (and thus mass) can be saved.

## CLAIMS

1. Winding Core for primary and secondary parts of a linear motors, comprising a yoke (3; 3') with protruding teeth (4; 4') that define slots (5) for receiving at least one winding, characterized in that each of the teeth (4; 4') has a yoke-proximal portion (7; 7') and a yoke-distal portion (6; 6'), wherein the yoke-proximal portion (7; 7') has a greater lateral dimension than the yoke-distal portion (6; 6') in the direction perpendicular to the movement direction of the linear motor.
2. Winding core according to claim 1, characterized in that the dimension of the yoke-proximal portion (7; 7') on one side is greater by about 5% than the dimension of the yoke-distal portion (6; 6').
3. Winding core according to claim 2, characterized in that the dimension of the yoke-proximal portion (7; 7') on each side is greater by up to 5% than the dimension of the yoke-distal portion (6; 6').
4. Winding core according to claim 1, 2 or 3, characterized in that the teeth (4; 4') are arranged in symmetry with respect to a direction perpendicular to the movement direction of the linear motor.

5. Winding core according to claim 1, 2, 3 or 4, characterized in that the teeth (4, 4') are formed with at least one shoulder (8; 10) to realize the widening of the dimension.
6. Winding core according to one of the claims 1 to 5, characterized by a slanted transition (10) between the yoke-proximal and yoke-distal portions.
7. Winding core according to one of the claims 1 to 6, characterized in that the beginning of the yoke-distal portion (6; 6') from the yoke (3; 3') is not farther away than half a tooth length.
8. Winding core according to claim 1, 2, 3 or 4, characterized in that the yoke-distal portion (6; 6') is connected to the yoke-proximal portion (7; 7') by a continuously widening dimension.
9. Winding core according to one of the preceding claims, characterized in that the yoke (3) has the same lateral dimensions as the yoke-proximal portion at least in the area of the teeth (4).
10. Winding core according to claim 9, characterized in that the yoke (3) has the same lateral dimensions as the yoke-proximal portion over the entire length.

11. Linear motor, comprising a primary part and a secondary part (2), characterized in that the primary part and/or the secondary part has a winding core according to one of the claims 1 to 10.

## ABSTRACT

The invention relates to a winding core for linear motors with a yoke (3) with protruding teeth (4) that define slots (5) for receiving the windings, wherein each of the teeth has a yoke-proximal portion (7) and a yoke-distal portion (6). To decrease the flux density in the yoke-proximal portion, the latter is widened laterally, i.e. perpendicular to a movement direction of the linear motor, with respect to the yoke-distal portion.

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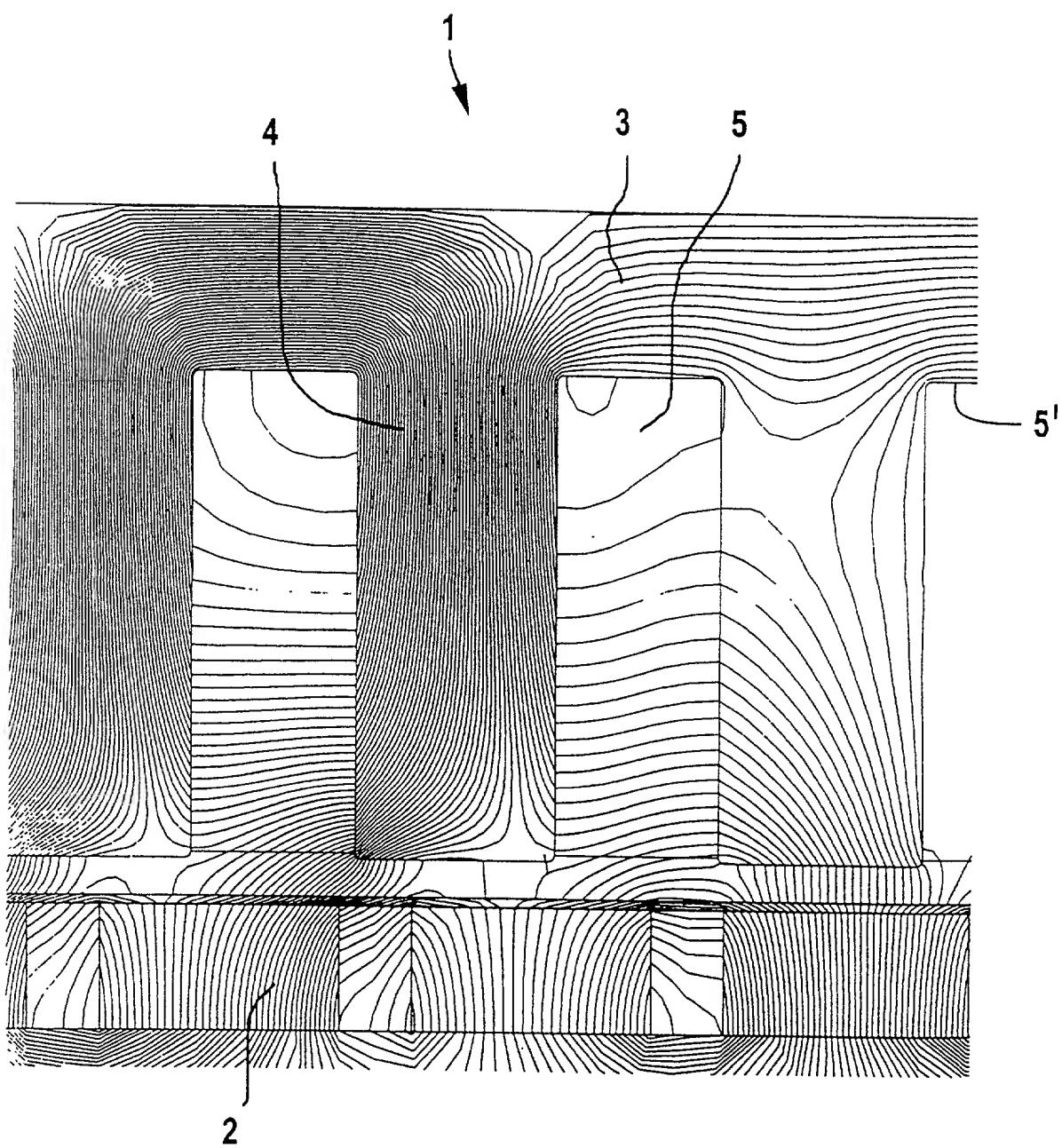


Fig. 1

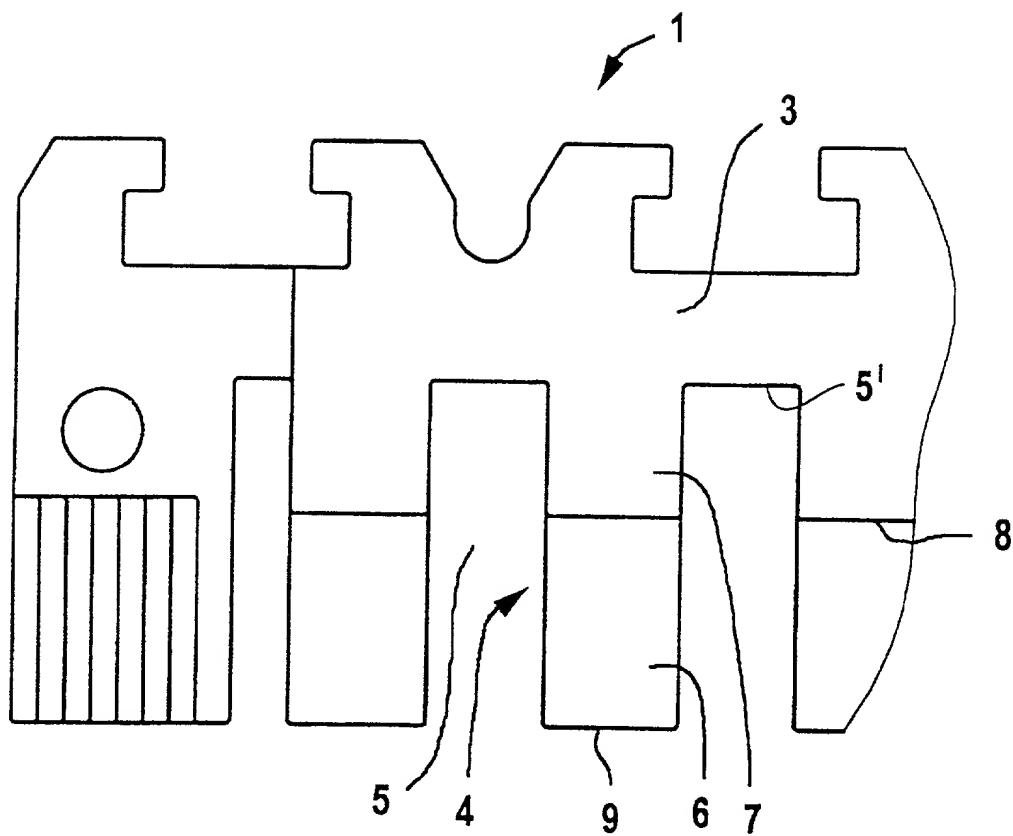


Fig. 2

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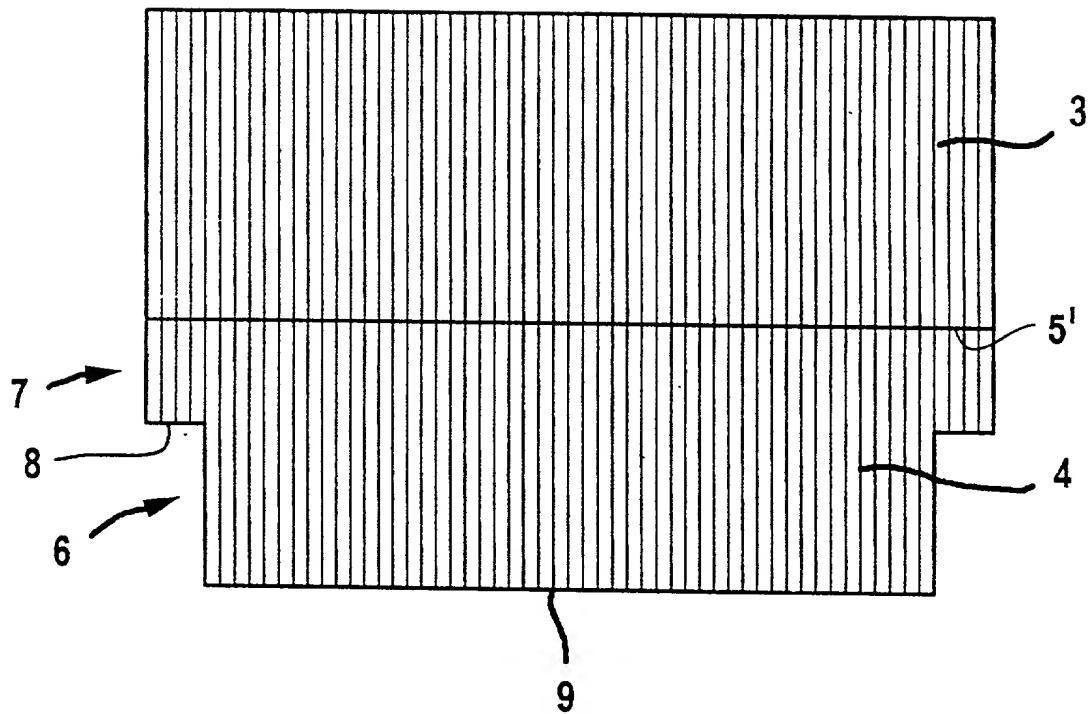


Fig. 3

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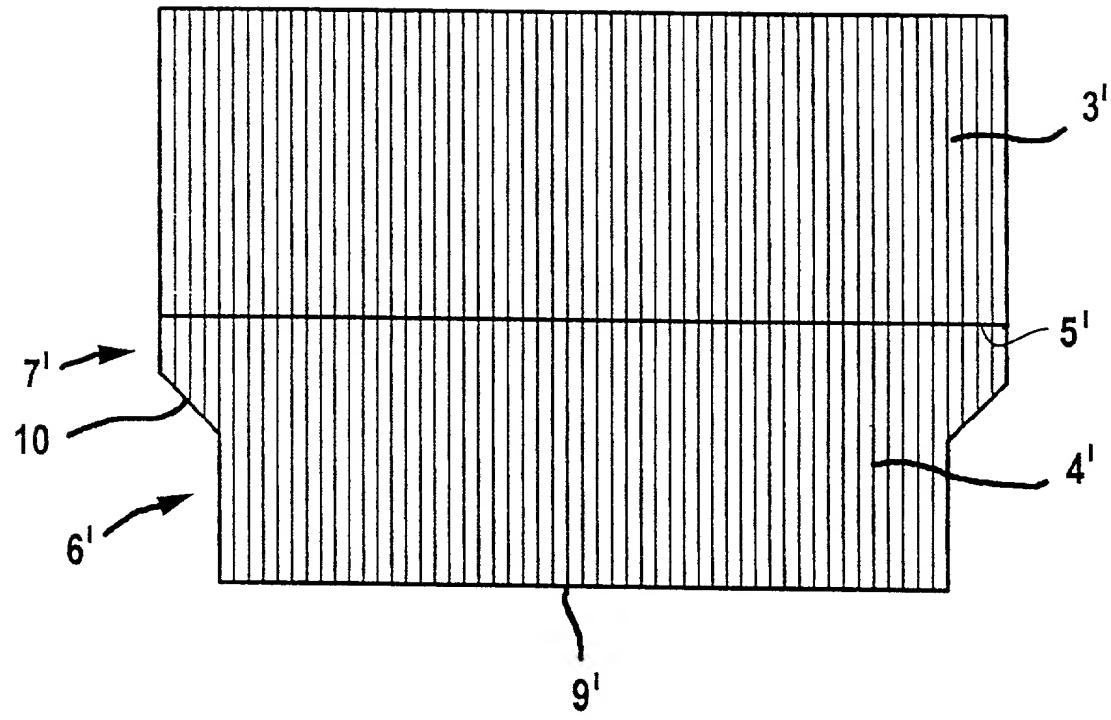


Fig. 4

**Declaration and Power of Attorney for Patent Application**  
**Erklärung für Patentanmeldungen mit Vollmacht**  
**German Language Declaration**

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

daß mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

daß ich, nach bestem Wissen, der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für den dieser Antrag gestellt wird und für den ein Patent beantragt wird für die Erfindung mit dem Titel:

**WICKLUNGSKERN FÜR LINEARMOTOREN**

deren Beschreibung  
(zutreffendes ankreuzen)

hier beigefügt ist.  
 wurde angemeldet am 12. November 1999  
 unter der U.S.-Anmeldungs Nr. oder unter der  
 Internationalen Anmeldenummer im Rahmen des  
 Vertrags über die Zusammenarbeit auf dem  
 Gebiet des Patentwesens (PCT)  
PCT/EP99/08713 und am  
 \_\_\_\_\_ abgeändert (falls  
 zutreffend).

Ich bestätige hiermit, daß ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag, wie oben erwähnt, abgeändert wurde.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen an, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Titel 37, Code of Federal Regulations, §1.56 von Belang sind.

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Titel 35, US-Code, §119(a)-(d), bzw. §365(b) aller unten angegebenen Auslandsanmeldungen für ein Patent oder Erfinderurkunden, oder §365(a) aller PCT internationalen Anmeldungen, welche wenigstens ein Land ausser den Vereinigten Staaten von Amerika benennen, und habe nachstehend durch ankreuzen sämtliche Auslandsanmeldungen für Patente oder Erfinderurkunden oder PCT internationale Anmeldungen angegeben, deren Anmeldetag dem der Anmeldung, für welche Priorität beansprucht wird, vorangeht.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**WICKLUNGSKERN FÜR LINEARMOTOREN**

the specification of which  
(check one)

is attached hereto  
 was filed on 12 November 1999  
 as United States Application Number or PCT  
 International Application Number  
PCT/EP99/08713, and was  
 amended on  
 \_\_\_\_\_  
 (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Applications  
(Frühere ausländische Anmeldungen)

Priority Claimed?  
Priorität beansprucht?

198 53 237.7 (Number) (Nummer)	Germany (Country) (Land)	18/November/1998 (Day/Month/Year Filed) (Tag/Monat/Jahr eingereicht)	<input checked="" type="checkbox"/> Yes Ja	<input type="checkbox"/> No Nein
(Number) (Nummer)	(Country) (Land)	(Day/Month/Year Filed) (Tag/Monat/Jahr eingereicht)	<input type="checkbox"/> Yes Ja	<input type="checkbox"/> No Nein

Ich beanspruche hiermit gemäss Titel 35, US-Code, §119(e), den Vorzug aller unten aufgeführten US-Hilfsanmeldungen

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) below

(Application No. / Anmeldenr.)

(Filing Date / Anmeldedatum)

(Application No. / Anmeldenr.)

(Filing Date / Anmeldedatum)

Ich beanspruche hiermit gemäss Titel 35, US-Code, §120, den Vorzug aller unten aufgeführten US-Patentanmeldungen bzw. §365(c) aller PCT internationalen Anmeldungen, welche die Vereinigten Staaten von Amerika benennen, und erkenne, insofern der Gegenstand eines jeden früheren Anspruchs dieser Patentanmeldung, bzw. PCT internationalen Anmeldung in einer gemäß dem ersten Absatz von Titel 35, US-Code §112 vorgeschriebenen Art und Weise offenbart wurde, meine Pflicht zur Offenbarung jeglicher Informationen an, die zur Prüfung der Patentfähigkeit in Einklang mit Titel 37, Code of Federal Regulations, §1.56 von Belang sind und im Zeitraum zwischen dem Anmeldedatum der früheren Patentanmeldung und dem nationalen oder im Rahmen des Vertrags über die Zusammenarbeit auf dem Gebiet des Patentwesens (PCT) gültigen internationalen Anmeldedatum bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s), or §365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

(Appl. No.)  
(Anmeldenr.)

(Filing Date)  
(Anmeldedatum)

(Status)  
(patentiert, anhängig aufgegeben)

(Status)  
(patented, pending abandoned)

(Appl. No.)  
(Anmeldenr.)

(Filing Date)  
(Anmeldedatum)

(Status)  
(patentiert, anhängig aufgegeben)

(Status)  
(patented, pending abandoned)

Ich erkläre hiermit, daß alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und daß ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, daß wissentlich und vorsätzlich falsche Angaben gemäss §. 1001, Titel 18 US-Code strafbar sind und mit Geldstrafe und/oder Gefängnis bestraft werden können, und daß derartig wissentlich und vorsätzlich falsche Angaben die Rechtswirksamkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

**VERTRETUNGSVOLLMACHT:** Als benannter Erfinder beauftrage ich hiermit den nachstehend benannten Patentanwalt (oder die nachstehend benannten Patentanwälte) und/oder Vertreter mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Geschäfte vor dem US-Patent- und Warenzeichenamt:

**POWER OF ATTORNEY:** As a named Inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

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PATENT OFFICE

Voller Name des einzigen oder ursprünglichen Erfinders

Full name of first inventor

DIETMAR STOIBER

Unterschrift des Erfinders

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